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### Therapeutic Effects of Ritual Ayahuasca Use in the Treatment of Substance Dependence—Qualitative Results

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# Therapeutic Effects of Ritual Ayahuasca Use in the Treatment of Substance Dependence—Qualitative Results

Anja Loizaga-Velder, Dipl.-Psych., Ph.D.<sup>a</sup> & Rolf Verres, M.D., Dipl.-Psych.<sup>b</sup>

**Abstract**—This qualitative empirical study explores the ritual use of ayahuasca in the treatment of addictions. Ayahuasca is an Amazonian psychedelic plant compound created from an admixture of the vine *Banisteriopsis caapi* and the bush *Psychotria viridis*. The study included interviews with 13 therapists who apply ayahuasca professionally in the treatment of addictions (four indigenous healers and nine Western mental health professionals with university degrees), two expert researchers, and 14 individuals who had undergone ayahuasca-assisted therapy for addictions in diverse contexts in South America. The study provides empirically based hypotheses on therapeutic mechanisms of ayahuasca in substance dependence treatment. Findings indicate that ayahuasca can serve as a valuable therapeutic tool that, in carefully structured settings, can catalyze neurobiological and psychological processes that support recovery from substance dependencies and the prevention of relapse. Treatment outcomes, however, can be influenced by a number of variables that are explained in this study. In addition, issues related to ritual transfer and strategies for minimizing undesired side-effects are discussed.

**Keywords**—addiction, ayahuasca, cross-cultural psychotherapy, ethno-medicine, ethno-psychotherapy, safety, substance dependence, therapeutic mechanism, treatment, variables influencing treatment outcome

## THEORETICAL BACKGROUND

Substance dependence and other substance-related disorders represent health problems with serious individual

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and social impacts worldwide. Public health campaigns and conventional psychotherapeutic and biomedical models have, so far, shown only limited success in prevention and treatment. The search for more effective strategies has led both therapists and patients to explore psychedelic compounds, among other alternative treatment strategies, in both traditional medicine and complementary medicine settings.

The question of whether LSD and other psychedelic drugs have therapeutic potential has been investigated in various psychotherapeutic settings since the 1950s. Some of these studies showed promising results, especially with regard to the treatment of alcoholism and drug dependency (Grof 1980; Halpern 2007; Halpern 1996; Hämig 2008;

Jungaberle, Gasser, Weinhold & Verres 2008; Krebs & Johansen 2012; Mangini 1998). However, due to the legal status of the psychedelics, this line of research remained inconclusive, and only a few of the past studies can satisfy criteria for modern methodological standards. Thus, many unanswered questions remain in this field of study. Generally speaking, as a consequence of the scheduling of psychedelics, the social, the political, and even the scientific discussion around these compounds remains rather prejudiced. There exists a tendency to focus mainly on possible complications and dangers associated with their use, while neglecting the possibility of therapeutic benefits.

Numerous anecdotal reports describe therapeutic benefits for diverse physical and psychological ailments, including substance dependence, resulting from participation in rituals with psychedelic plants (see, e.g., Chiappe Costa 1979; Dobkin de Rios 1972; Thesenga & Thesenga 2012). Also, various preliminary scientific studies have indicated that the ritual use of psychedelic plants within structured settings may have a positive impact on substance-related disorders (Brierley & Davidson 2012; Calabrese 2013; Doering-Silveira et al. 2005; Fábregas et al. 2010; Halpern 2007; Halpern 1996; Halpern et al. 2008; Labate et al. 2013; Labate et al. 2010; Labigalini 1998; Liester & Prickett 2012; Mercante 2009; Thomas et al. 2013). Based on these findings, this article explores the therapeutic potential of the Amazonian plant compound ayahuasca for the treatment of addictions.

### Ayahuasca, Religion, and the Seeking of Self-Knowledge

Ayahuasca is a beverage with psychedelic properties, prepared from the vine *Banisteriopsis caapi* and other admixture plants. Leaves from chakruna (*Psychotria viridis*) or chagropanga (*Diploteris cabrerana*) are most frequently added (McKenna, Luna & Towers 1995). Both of these plants contain N,N-dimethyltryptamine (DMT). The *Banisteriopsis caapi* vine contains betacarbolines (harmine, harmaline, and tetrahydroharmine), which act as potent monoamine oxidase inhibitors (MAOIs). These MAOIs render the DMT in the admixture plants orally active (Callaway et al. 1999).

Ayahuasca exerts its psychoactive properties through its actions on the serotonergic and dopaminergic system (Callaway & Grob 1998; Riba et al. 2002; Schwarz et al. 2003). Similarly structured psychedelics have been found to also affect the glutamatergic system (Vollenweider 2008). Ayahuasca probably does so as well, although this requires further investigation.

In addition to its continued cultural and medicinal use in both traditional indigenous and *mestizo* contexts in the Amazon regions (Luna 1986; 2011), ayahuasca is regarded as a religious sacrament by various syncretic religious groups in Brazil. The largest Brazilian ayahuasca religions are the Santo Daime, União do Vegetal (UDV),

and Barquinha. Over the past 25 years, the Santo Daime and UDV have spread beyond the Amazon region to large Brazilian cities and abroad, establishing extensions in different American countries, Europe, Australia, and Japan (Labate & Jungaberle 2011; Tupper 2008). It is estimated that there are over 20,000 participants in the so-called ayahuasca religions worldwide (Labate & MacRae 2010). Furthermore, in the last few decades, indigenous, neo-shamanic, and psychotherapeutic ayahuasca rituals have also expanded internationally (Labate & Jungaberle 2011; Tupper 2008).

People who attend ayahuasca rituals, for the most part, report motives such as seeking further self-knowledge, personal growth, spiritual development, or healing for a variety of psychological and physiological afflictions, including substance dependencies (Fiedler, Jungaberle & Verres 2011; Groisman & Dobkin de Rios 2007; Labate et al. 2010; Mercante 2009; Santos, Carvalho de Moraes & Holanda 2006; Schmid 2008). Religious and therapeutic motives might be intertwined in many cases.

### Safety and Toxicity

Clinical research in laboratory settings has indicated that ayahuasca is physiologically benign within average dose parameters (Riba & Barbanoj 2005; Riba & Bouso 2011). Several interdisciplinary research projects have assessed the medicinal, pharmacological, and psychological effects of ayahuasca use among long-time members of ayahuasca churches. Members of these churches ingest ayahuasca twice a month on average. Regular use of ayahuasca, when it is taken in a ritual context with a supportive environment, such as that provided by these religious communities, is reasonably safe and shows no long-term toxicity (Guimarães dos Santos 2013). No evidence of maladjustment, deterioration of psychological health, cognitive impairment, or psychosocial effects commonly associated with drugs of abuse were shown among the investigated ayahuasca-using groups (Bouso et al. 2012; Callaway & Grob 1998; Doering-Silveira et al. 2005; Fábregas et al. 2010; Grob et al. 1996; Halpern et al. 2008). Rather, positive influences on physical and mental health, including decreased use of other psychoactive substances, were observed in some of these studies (Fábregas et al. 2010; Grob et al. 1996; McKenna, Callaway & Grob 1999). This observation is consistent with findings related to safety issues regarding psychedelic-supported psychotherapy in general (Hermle 2008). According to a Swiss retrospective study, in carefully structured contexts, complications with this form of therapy are no more frequent than with conventional psychotherapy (Passie 2007; Jungaberle, Gasser, Weinhold & Verres 2008).

However, the use of ayahuasca is contraindicated with certain psychiatric and physical conditions. These include predispositions to psychosis, lesions of the gastrointestinal track, severe liver and kidney impairment, cardiovascular

and cerebral vascular diseases, and uncontrolled hypertension. Furthermore, ayahuasca can interact adversely with some pharmaceuticals, dietary supplements, or drugs of abuse<sup>1</sup> (Callaway & Grob 1998; Gable 2007; Savinelli & Halpern 1995).

### Therapeutic Uses of Ayahuasca in Substance Dependence Treatment

Ayahuasca-assisted treatment for substance dependence is currently offered in several countries of the American continent, including Peru, Brazil, Ecuador, Colombia, Argentina, Chile, and Mexico.<sup>2</sup>

Different treatment modalities are utilized, which have evolved from the cross-cultural transference of ayahuasca rituals over the last several decades. These therapeutic approaches are rooted in traditional Amazonian practices, the Brazilian ayahuasca religions, or psychedelic-assisted psychotherapy, or consist of a hybrid combination of these. Modalities include: (1) informal support, as is offered by some religious groups in Brazil which provide humanistic services to substance-dependent individuals, including the option to participate in ayahuasca rituals; (2) outpatient programs that complement more conventional psychotherapeutic programs by offering monthly ayahuasca sessions in workshop settings; and (3) inpatient programs of various durations, which offer regular ayahuasca sessions as an integral part of the therapy. Structural aspects and professionalism vary considerably among existing programs.<sup>3</sup>

A recent observational study of ayahuasca-assisted therapeutic retreats for substance-dependent members of a Canadian First Nation community indicated therapeutic efficacy of this intervention (Thomas et al. 2013), and two multidisciplinary therapeutic centers that offer inpatient treatment based on a combination of traditional indigenous or religious ayahuasca use and modern psychotherapy, Takiwasi in Peru and the Institute of Applied Amazonian Ethnopsychology (IDEAA) in Brazil, have shown promising preliminary therapeutic outcomes (Fernández & Fábregas 2013; Giove Nakazawa 2002; Mabit 2007). However, studies conducted at these programs have methodological shortcomings that make further empirical and conceptual studies necessary.

## RESEARCH METHODS

The authors carried out an exploratory study using a qualitative reconstructive method based on the paradigm of symbolic interactionism (Lamnek 2005). This approach aims at grasping subjective perspectives of the interviewees and providing a comprehensive and multidimensional phenomenological representation of the field of study. Data were gathered through field observation, problem-centered interviews (Kvale & Brinkmann 2009; Witzel 2000), and textual resources. Research data were evaluated through

content analysis using conceptually structured displays according to Miles and Huberman (1994).

The purpose of this study was to broaden the knowledge in the field of ayahuasca-assisted therapy for substance dependencies and, specifically, to provide a description of possible therapeutic mechanisms and effects of ayahuasca from a psychotherapeutic point of view and to identify the variables that may influence treatment outcomes. Possible risks associated with ayahuasca-assisted therapy and the possibilities of integrating this approach into psychotherapeutic settings in Western countries were also explored.

The qualitative study included: (1) a review of seven therapeutic projects located in South America; (2) interviews with 13 therapists who apply ayahuasca professionally in the treatment of addictions; (3) interviews with two expert researchers on the topic; and (4) interviews with 14 individuals who had undergone ayahuasca-assisted therapy for addiction in diverse treatment settings in South America (cf. Presser-Velder 2013).

Multiple sources of data (statements of therapists, researchers, and patients; patient files; and written material about the therapeutic projects) and multiple methods of data collection (field study, participative observation, problem-centered interviews, and reviews of textual resources) were used, in order to enhance the understanding of the research subject and the validity of the findings, a procedure referred to as triangulation (Patton 2002).

### Research Sites and Interviewees

As recommended in qualitative research, participants were selected purposefully rather than randomly. Information-rich cases were sought out with the objective of yielding insight and understanding of the research subject, a method referred to as "criterion-based" sampling (Patton 2002).

As part of several field studies in Peru and during attendance at professional congresses in Peru, the United States, and Germany, the first author interviewed 13 therapists who provide ayahuasca-assisted treatment in different North and South American countries. These included four traditional indigenous ayahuasca-healing practitioners from two distinct areas of the Peruvian rainforest (the cities of Iquitos and Tarapoto) and three distinct ethnic groups (Cocama, Quecha-Lamista, and Mestizo/Chazutino), and nine mental health professionals with psychological and/or medical training from Peru (4), Brazil (1), Argentina (1), Spain (1), the United States (1), and Canada (1). In addition, interviews were conducted with two expert researchers, both professors from universities in the United States, one with a psychological and one with a psychiatric background. Both researchers are specialists in the fields of mental health, ayahuasca, altered states of consciousness, and substance dependence.

For the second part of the study, 10 individuals who had undergone treatment with ayahuasca for substance dependence and four individuals who had reported overcoming substance dependence through participation in ayahuasca rituals without formal treatment programs were interviewed. All interviewed patients had completed their treatment at least two years prior to this research or had been abstinent from their primary substance of abuse for at least two years after participating in ayahuasca ceremonies outside of formal treatment contexts.

Most ritual participants (12/14) were Latin American. Nationalities included Peruvian (7), Argentine (2), Mexican (2), Colombian (1), Spanish (1), and American (1). Five of the 14 originated from rural/mestizo and nine from urban cultural backgrounds. Ritual participants from indigenous cultural backgrounds were not included, as the study focused on the intercultural application of ayahuasca.

The ages of the interviewed ritual participants ranged from 24 to 52 years (mean 42 years). A wide spectrum of educational levels (incomplete elementary school to university degrees), occupations, and professions was observed (occupations included, for example, a tray vendor, a sound engineer, a shop owner, and a clinical psychologist). All had a long history of severe substance dependence (mean of 14 years), with strong negative impact on health, interpersonal relationships, and work. The majority of the ritual participants reported poly-drug use prior to treatment. Alcohol, cocaine, and base cocaine were the principal drugs of abuse. The majority of the ritual participants (9/14) had a history of multiple, unsuccessful treatments before initiating ayahuasca-assisted treatment. Ten of the 14 participants reported being abstinent at the time of the interview. Three participants stated that they had consciously chosen controlled use of a substance (alcohol in two cases and cannabis in one case) as a better alternative than complete abstinence, and one reported using less harmful substances in a more moderate pattern as a consequence of his participation in ayahuasca-assisted treatment. Patients with unsuccessful treatment courses could not be included in this study, due to the restricted time in the field.

## RESULTS

The data of therapists and ritual participants were collected and evaluated separately in this study. However, for the purpose of this article, relevant findings for ritual participants and therapists will be thematically structured and presented together.

### Subjective Theories of Our Interviewees About Therapeutic Mechanisms

All of the interviewed therapists (traditional and Western alike) regarded ayahuasca as a valuable therapeutic tool for the treatment of substance dependence, among

various other disorders. According to their experience, ayahuasca can catalyze therapeutic processes, making them shorter and more effective. However, due to legal considerations, several of the Western therapists who practice outside of the Amazon regions do not employ ayahuasca as the primary treatment strategy, but rather use it when other resources have failed.

All of the ritual participants reported that participation in ayahuasca rituals had been pivotal for achieving and sustaining abstinence or less harmful patterns of drug use.<sup>4</sup> Participants also reported that ayahuasca helped them to gain a better understanding of the underlying causes of their addictions, to overcome psychological issues that had impaired general functioning in the past, and to mobilize positive resources such as self-efficacy expectations.

Study findings indicate that ayahuasca experiences can foster various psychophysical processes that are also valued in other therapeutic approaches for substance dependence. In well-structured settings, ayahuasca experiences can contribute to the process of recovery from substance dependence by facilitating interconnected body-oriented, psychological, and spiritual awareness and reframing processes, which can provide important therapeutic resources for a successful recovery from substance dependence and prevention of relapse (see Loizaga-Velder [2013] for a more detailed illustration of the therapeutic mechanism of ayahuasca).

One finding that merits special attention is that over half of the ritual participants (9/14) reported that they experienced a reduction of cravings after their participation in ayahuasca rituals. Also, interviewed therapists consistently pointed out that they observed such effects in their patients, lasting for periods ranging from several days to several years. Some of the therapists hypothesized that the observed anti-craving mechanism is principally a consequence of psychological or spiritual processes triggered by the ayahuasca-induced, non-ordinary state of consciousness, a hypothesis also shared by the ritual participants. Other therapists and both of the interviewed scholars suggested that there might also be a pharmacological anti-craving mechanism involved in this effect. This hypothesis merits further research.

Moreover, some (3/14) patients and (4/15) therapists reported attenuation of withdrawal symptoms. One of the interviewed scholars suggested that heavy vomiting under the ayahuasca-induced, non-ordinary state of consciousness could trigger endorphin release, which might contribute to this effect.

Ayahuasca-induced spiritual experiences were assigned high therapeutic value by both patients and therapists. Such experiences can increase a sense of meaning and purpose in life and a connection with a spiritual energy greater than oneself, aspects that are highly valued in Alcoholics Anonymous and other spiritually oriented, substance-abuse treatment approaches. Several patients

(6/14) reported that ayahuasca-induced transcendental experiences transformed their consciousness in a way that allowed them to overcome craving for drugs without effort, as illustrated by one ritual participant:

After the first ayahuasca session I was not drinking any alcohol for two weeks. It was not even on my mind . . . after taking ayahuasca, not drinking came naturally . . . there was no void that needed to be filled anymore . . . I found that life had a meaning. . . . What really helped me [with my substance dependence] was the spiritual connection I got from the ayahuasca ceremonies . . . They gave me a sense of a spiritual nature in life, which made me realize that I did not want to binge drink anymore, because life is much more important than that . . . I no longer feel the strong desire to drink . . . I began to reevaluate my life (Steve).<sup>5</sup>

Another therapeutically relevant mechanism of ayahuasca is its potential to lower psychological defense mechanisms and allow ritual participants to readily accept previously denied aspects of the psyche, which are usually difficult to address in ordinary therapeutic settings. As one of the interviewed psychiatrists stated:

Drug addiction is a process of lying to oneself, and ayahuasca is a truth medicine . . . what ayahuasca does is . . . unmask how the addict has accommodated the illness . . . One can't lie to oneself on ayahuasca. It will force you to see what you always ignore and that is extremely disturbing . . . this becomes an opportunity for change . . . The awareness of how the addict is deceiving himself and how lying to oneself is precisely how one got to be addicted in the first place. This can be a dramatic shift in awareness of self that can be quite painful to endure, but with greater benefit . . . I don't know a more effective way to get people to confront their true self. None of the Western medicines or methods can do this as ayahuasca does (Professor H.).

Study findings indicate that ayahuasca-induced, non-ordinary states of consciousness can also stimulate psychological processes of reframing that provide resources for the relief of stress, emotional pain, or trauma typically associated with substance dependence. Experiences with ayahuasca can also trigger therapeutically relevant insights, promote personal growth, and support interpersonal awareness.

In addition to its role as a therapeutic tool for patients, a few interviewed practitioners referred to ayahuasca's value as a training tool for therapists. These practitioners found that their own personal use of ayahuasca had enhanced their therapeutic intuition, induced self-exploration, and provided an important and effective contribution to their psychotherapeutic training.

### Factors Perceived to Influence Treatment Outcome

All interviewed therapists and ritual participants pointed out that ayahuasca-assisted treatment is useful for only some ritual participants, and only under circumstances reflecting a number of different variables. The interviewed

therapists identified several factors that could influence the outcome of the experience and hence the therapeutic process triggered by ayahuasca.

In synthesis, the effects of ayahuasca and its therapeutic value are dependent on the three factors that have been identified as influencing outcomes of substance-assisted therapy in general: (1) the *substance* (in the case of ayahuasca, the composition [i.e., the proportions of MAO-inhibiting vs. DMT-containing plants] and quality of the plant concoction, an adequate dose, and the frequency of administration); (2) the *set* (the expectation of the participant, the psychological readiness for undergoing non-ordinary states of consciousness, the preparation for the experience, and the intention for the intake of ayahuasca); and (3) the *setting* (the quality of containment and guidance of the experience and the appropriateness of the broader therapeutic framework in which ayahuasca-assisted treatment is embedded). In addition to these three factors which influence the quality of the modified state of consciousness, a fourth factor is also a determinant of the therapeutic effect of addiction treatment supported with psychedelics: the level of integration of the experience and implementation of insights into enduring change. This variable depends on both the patient's capacity for integration and the use of adequate therapeutic strategies that can foster integration. The value of ayahuasca-induced, non-ordinary states of consciousness and the importance of their integration were described as follows by one interviewed psychologist:

Non-ordinary states of consciousness [NSC] remove the person from their habitual way of thinking and feeling, and induce a new way of thinking and feeling. . . . If the therapeutic set and setting are right, then the subject can see him or herself in a new light. . . . [Through the NSC] a new perspective for recovery may open up for the patient with an expanded awareness of the extent of damage drug addiction has had in multiple life areas and critical measures to be implemented for a successful recovery. . . . The induction of intuitive insight is the basic vehicle for self-knowledge and the challenge is how to integrate this newly acquired knowledge into everyday life. So what you take in through a non-ordinary state you have to bring back to ordinary consciousness (Professor K.).

The therapists recommended strategies such as individual and group verbal sharing and processing of the experience, journaling, painting, contemplative practices, and activities in nature to support the integration of the experience.

Factors that influence outcomes for substance dependence treatment in general (U.S. Department of Health and Human Services, National Institutes of Health & National Institute of Drug Abuse 2009) were also mentioned by the interviewed therapists as being relevant in the outcome of ayahuasca-assisted addiction treatment. These include: (1) motivation, or the degree of active engagement of the patient in the treatment process and treatment retention; (2) the primary substance of abuse and the severity of addiction; (3) the extent and nature of the patient's

presenting problems and co-morbid psychopathology (special attention must be paid to patients for whom ayahuasca use may be contraindicated); (4) the appropriateness of the treatment components and related services used to address the patient's problems; (5) adequate duration of treatment; (6) the characteristics of the therapist and staff members and the strength of the therapeutic alliance; (7) the transition to continued outpatient care after inpatient treatment; and (8) the degree to which culturally specific considerations and interventions are included in the treatment.

In regard to cultural factors, it is worth noting that, according to the experience of all interviewed therapists, traditional ayahuasca ceremonies can be as therapeutically effective for individuals from Western cultural backgrounds as for mestizo or indigenous participants. On this topic, one member of the therapeutic team at Takiwasi stated:

If there is an indication for the ritual use of plants, they can be effective beyond cultural differences. It is not necessary to rationally understand why and how it works. Nevertheless, there is an interaction with the cultural predispositions of the participants, which can influence the content of visions and personal work (. . .). Especially for people from the Western culture, the analysis and contextualization of the visionary experiences, through talking and integration in the daily reality of the people, is important (Doctor G.).

### Risks and Complications Associated with the Therapeutic Use of Ayahuasca

All interviewed therapists emphasized that ayahuasca is a very potent plant medicine which needs to be handled with care and professionalism in order to avoid or minimize side-effects; however, they also considered ayahuasca to be reasonably safe when used in well-structured therapeutic contexts.

**Contraindications.** Traditional healers understood and handled contraindications within culturally specific concepts embedded in traditional medicine, such as "a weak spirit." Some of them used pulse diagnosis for the purpose of screening patients. For the most part, however, they were not aware of pharmacological adverse interactions with biomedical medications or drugs of abuse. Contraindications mentioned by therapists with Western training were largely congruent with the ones mentioned in the theoretical section above.

**Difficult situations.** According to interviewed therapists, psychological complications after ayahuasca intake are principally associated with insufficient screening for specific contraindications, unprofessional management of the non-ordinary states of consciousness, or the absence of adequate integration processes with vulnerable patients. Nearly all therapists reported difficult or critical situations during ayahuasca ceremonies, which were successfully resolved with proper therapeutic work. These situations

were considered not as undesired, but rather as events that can be of important therapeutic value.

**Complications.** Most therapists stated that they had never observed lasting undesired side-effects in their patients. Nevertheless, three complications were reported. Two incidents were transient psychotic episodes that resolved after a few days. One of these cases resolved with help of a traditional healer; the other resolved with psychiatric medication. The third incident was a suicide on the day after the ayahuasca ceremony. The interviewed therapist attributed the suicide to the fact that ayahuasca was taken in an outpatient setting and the patient had received insufficient support for integration before leaving. The interviewed therapist was notably affected by this tragic event. However, he pointed out that this kind of incident can also occur in association with conventional psychotherapeutic practice with severely substance-dependent patients.

**Potential for abuse or dependence.** The therapists did not consider ayahuasca as being susceptible to abuse or dependence dynamics when taken within supervised religious or therapeutic contexts in combination with careful integration strategies. Reference was made to the fact that psychedelics, in general, have very little addictive potential. This is believed to be due to their unpredictable effects, which make them inappropriate for self-medication purposes.<sup>6</sup> The unpleasant taste and nauseating/emetic side-effects of ayahuasca also contribute to the prevention of abuse. In this regard, patients reported that ayahuasca experiences, for the most part, were not pleasant. In fact, they were described as difficult, both physically and psychologically. None of the interviewed ritual participants reported that they had sought out ayahuasca experiences for recreational or hedonistic purposes. Rather, they considered them as intense inner work.

## DISCUSSION

The findings of the present study allow the conclusion that the use of ayahuasca in appropriate contexts can support therapeutic processes in the treatment of substance dependence by facilitating interconnected body-orientated, psychological, and spiritual experiences.

One noteworthy finding is that such ayahuasca experiences can apparently contribute to diminished drug craving. This has important therapeutic implications, as craving and relapse are strongly related, and should be explored in further studies. In addition to the psychological aspects, which were the principal focus of the present study, pharmacological aspects of ayahuasca-assisted addiction treatment merit further research. Recent research has pointed out that ayahuasca acts on several neurological pathways which are involved in craving and other aspects of substance abuse and which have been explored as targets for potential

pharmaco-therapeutic treatments (Liester & Prickett 2012). Based on preclinical studies, Brierley and Davidson (2012) suggest that harmine can regulate aberrant dopamine reuptake rates. This may be relevant for substance dependence treatment in so far as dopamine has been identified as playing an important role in the reinforcing effect of drug consumption (Ciccocioppo 1999; Koob 2008; Volkow et al. 2008). These pharmacological aspects may come into play, particularly among individuals who regularly partake in ayahuasca rituals, such as members of ayahuasca churches and participants in structured therapeutic programs that include regular ayahuasca intake.

Ayahuasca should not be understood as a primarily pharmacological intervention. Rather, it should be conceptualized as a catalyst with a therapeutic value that can unfold when the identified variables of set, substance, setting, and integration are appropriately managed.

As with any potent tool, there are risks associated with its use. This is especially true when contraindications are not respected, when ayahuasca is used by individuals who are unable to handle its effects, or when it is used in inadequate settings.

Psychological complications can also occur when insufficient attention is brought to issues arising from ritual transfer, including insufficient support for the integration within different cultural contexts, and ethical issues such as sexual transgressions with female patients. Untrained charlatans posing as ayahuasqueros present a serious risk through unsafe settings, dubious quality of the ayahuasca preparations (which may contain toxic or dangerous additives), and overall poor management of critical situations. Economic exploitation of patients may also occur in these contexts.

It is also important to consider that ayahuasca can be discussed as a valuable therapeutic tool to the extent that the individual can assimilate and accommodate the experience psychologically and implement insights into behavioral changes. Whereas some (4/14) interviewees have reported important positive changes in their lives induced by rituals outside of formalized treatment contexts, for most substance-dependent patients, a professionally structured psychotherapeutic support may be required to maximize and extend the benefits from the ayahuasca experience.

Study findings indicate that, when done with mutual respect for knowledge systems and professionalism, indigenous ayahuasca-assisted and modern approaches to addiction treatment may be successfully integrated in a complementary way. Benefits can be reciprocal. On the one hand, experiences from ayahuasca rituals may provide valuable contributions to psychotherapeutic interventions. On the other hand, diverse Western psychotherapeutic strategies and current scientific research involving ayahuasca can enhance the therapeutic effectiveness and safety of indigenous ayahuasca healing rituals for Western

patients; e.g., through informing traditional ayahuasqueros about pharmaceuticals that are contraindicated and sensitizing them to specific psychological needs of Western participants. The combination of ayahuasca-assisted approaches with addiction treatment with mainstream biomedical and psychological therapeutic approaches requires, however, complex intercultural considerations. Ayahuasca ceremonies have been adapted over centuries to best serve the cultures of their origin. The internationalization of ayahuasca, however, has brought ayahuasca into different cultural settings. This has created a situation that requires a careful adaption of rituals and appropriate structures for the preparation and integration of the experience. This adaptation process is still in progress and calls for regulation and professionalization (Labate & Jungaberle 2011).

### Limitations and Significance of This Study

A general limitation of qualitative studies is the potential for bias on the part of the interviewees and the researcher. Interviewed therapists (who are all professionally invested in this line of work) were convinced that ayahuasca is a valuable therapeutic tool for addiction treatment. Their statements should be seen as reflections of their subjective concepts about this treatment form. Interviewed ritual participants might wrongly attribute processes to ayahuasca that have been facilitated by other therapeutic interventions or by spontaneous psychological development. Retrospective self-reports may, furthermore, be susceptible to distorted memory or social-expectancy effects. This could be addressed only partially through triangulation with information provided by the therapists, who were in charge of their follow-up interventions. Nevertheless, several aspects of obtained statements were largely congruent with study results from other qualitative studies conducted in relation to ayahuasca-supported substance dependence treatment (Bustos 2008; Denys 2005; Fernández & Fábregas 2013; Giove Nakazawa 2002; Pfitzner 2008; Presser-Velder 2000; Thomas et al. 2013). In order to reduce researcher bias, the author's preconceptions were made explicit and were carefully addressed through self-reflection and discussion with professional colleagues in order to increase the intersubjectivity of the findings.

This study has further limitations, which are a consequence of procedures for selecting research sites and participants. The data quality of this study could have been increased with more time in the field, which would have allowed for more systematic selection of interviewees, a review of a greater variety of therapeutic contexts in different geographical areas, and a larger number of patients who had undergone ayahuasca-assisted treatment, including unsuccessful cases. If we want to gain a comprehensive answer to the question of which factors contribute to successful treatment outcomes, it will be important to

investigate unsuccessful therapeutic courses and to analyze why these failed.

The exploratory character of this study does not allow for a scientific evaluation of the effectiveness of ayahuasca-supported therapy. In order to meet current scientific standards, this question should be answered through randomized, controlled clinical trials with a combination of qualitative and quantitative research methods. The significance of this study is the illustration of the therapeutic effects and mechanisms of action of ayahuasca in addiction treatment from the perspectives of a diverse group of therapists and ritual participants. The findings also provide a preliminary cartography of the therapeutic effects of ayahuasca from a psychotherapeutic perspective and the identification of factors that can influence treatment outcomes.

## CONCLUSION

For some patients and when used appropriately, ayahuasca seems to be an effective therapeutic tool for treating substance dependence. These results are preliminary and need to be verified through studies that involve systematic data collection with larger samples and standardized outcome measures. Stigma related to unconventional therapeutic approaches, including psychedelic-assisted therapy, should not preclude the objective evaluation of treatment outcomes; rather, these should be considered in a strictly scientific manner, in search of novel treatment strategies that could be effective in relieving the suffering of substance-dependent individuals.

## NOTES

1. Contraindicated drugs include irreversible or non-selective MAO inhibitors (e.g., phenelzine,

tranylcypromine); selective-serotonin-reuptake-inhibitors (SSRIs, such as fluoxetine [Prozac]); tricyclic antidepressants; some kinds of opiates; barbiturates; analgesics; MDMA; cocaine; amphetamines; and dietary supplements such as ginkgo biloba, ginseng, and kava.

2. Due to the DMT content of the ayahuasca beverage, the legality of ayahuasca is quite complex and ambiguous and is dependent on the particular laws of different countries (Labate & Feeney 2012; Tupper 2012). In Peru, the use of ayahuasca is recognized as a therapeutic element of traditional medicine and is considered a National Cultural Patrimony (Instituto Nacional de Cultura 2008). In Ecuador and Colombia, the therapeutic use of ayahuasca is politically tolerated. In Brazil, the religious use of ayahuasca has been legally permitted since 1986; the therapeutic use of ayahuasca is not allowed, but is tolerated when therapeutic effects occur secondary to religious ceremonies. In other Latin American countries, such as Argentina, Mexico, or Chile, the legal situation of the therapeutic use of ayahuasca remains undefined.

3. Such treatments are provided by practitioners of traditional medicine, therapists working in private practices, NGOs, or religious groups. Usually, patients contribute a varying amount of money to their treatment; in some humanitarian or religious groups, treatment is delivered free of charge.

4. It should be noted, however, that persons who did not have a positive response to ayahuasca-assisted treatment were not included in this study.

5. All names are pseudonyms.

6. It is an observed fact throughout addiction science that substances such as nicotine, cocaine, and heroin, which can function as mood regulators in an immediate and predictable way, have a higher potential for psychological dependence.

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